Validation of OMI total ozone using ground-based Brewer and Dobson observations

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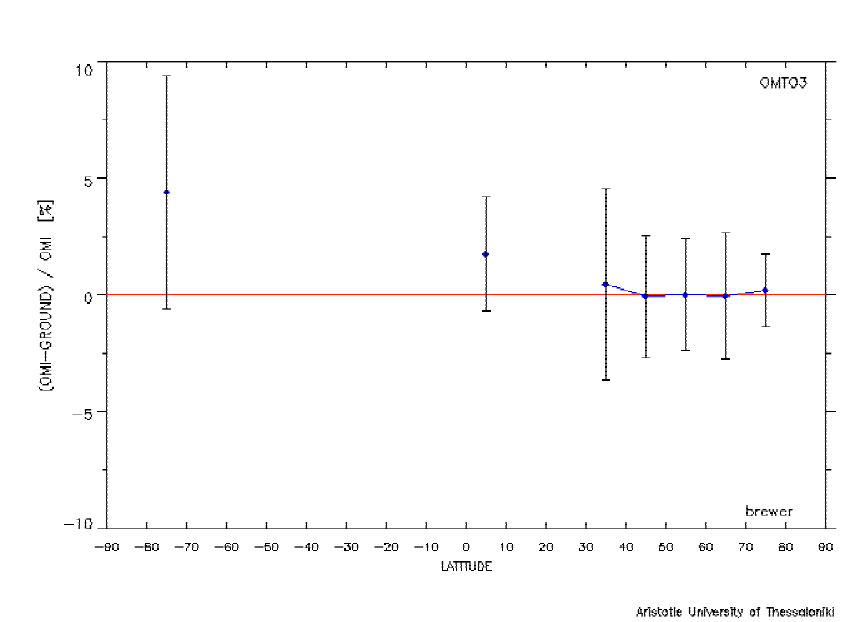
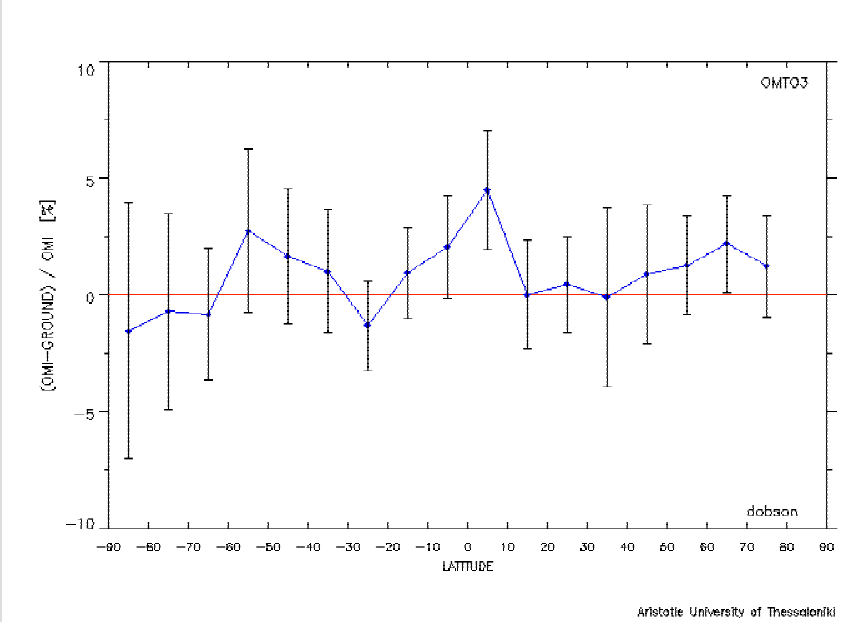
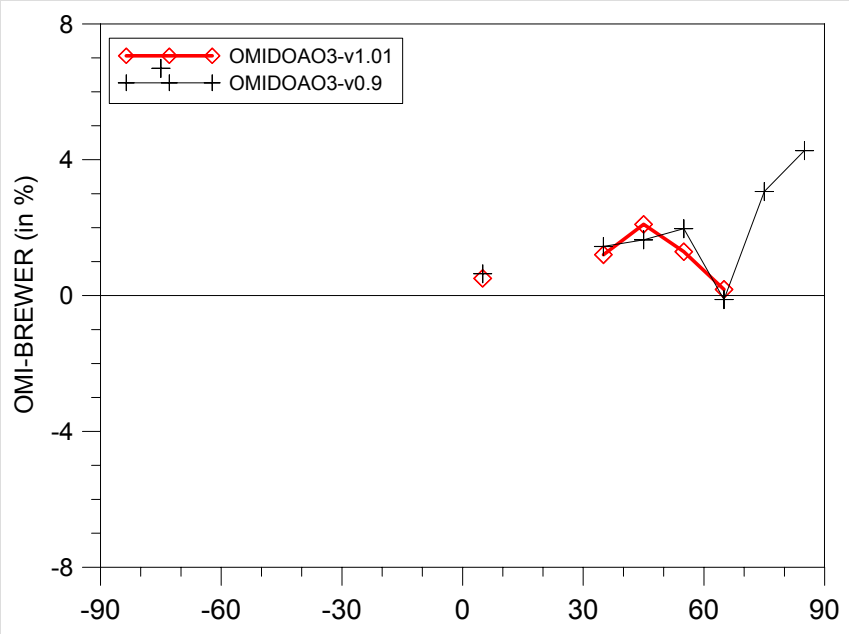
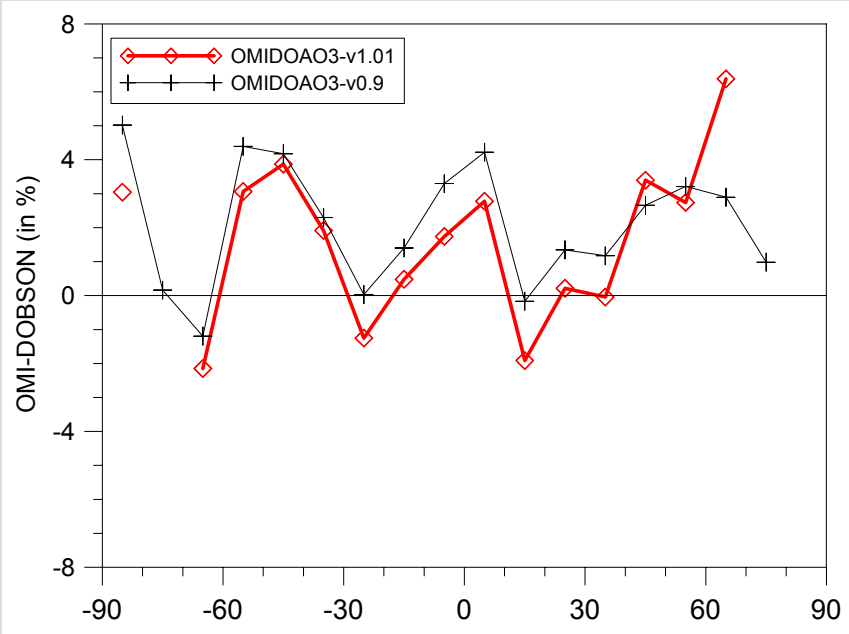
Latitude Dependence

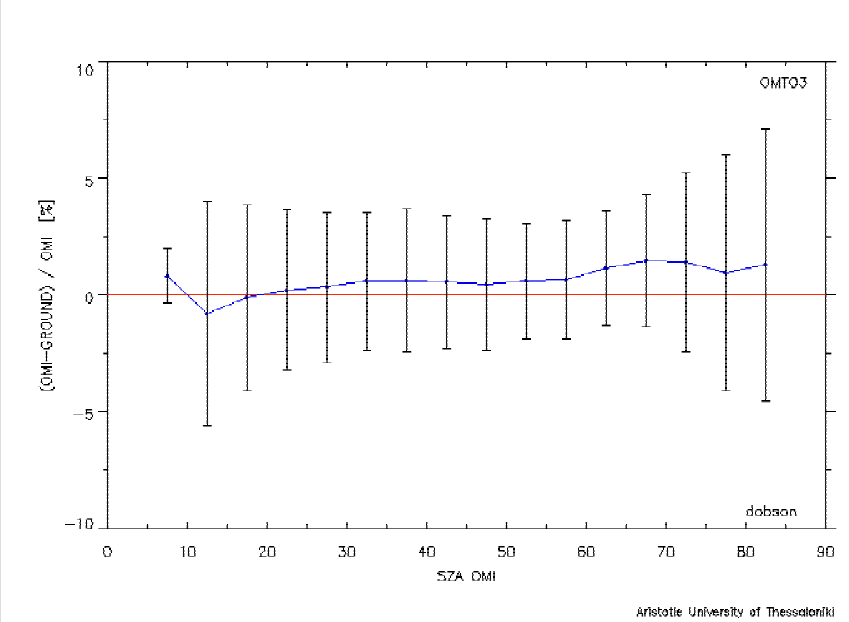


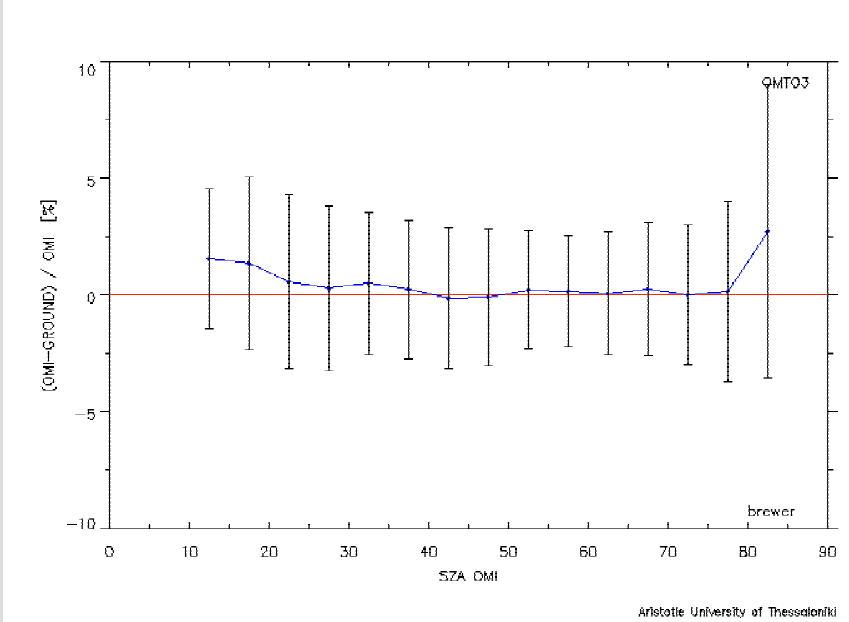


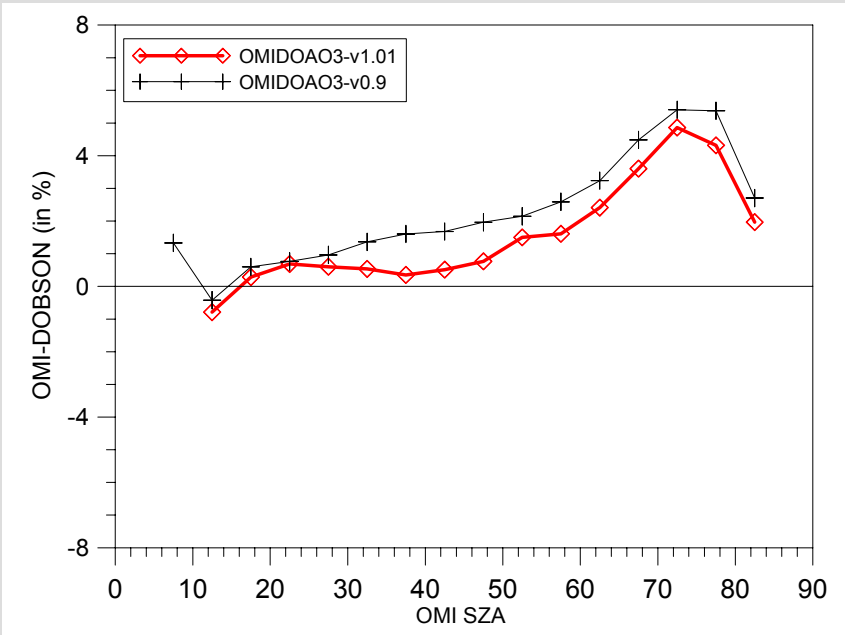


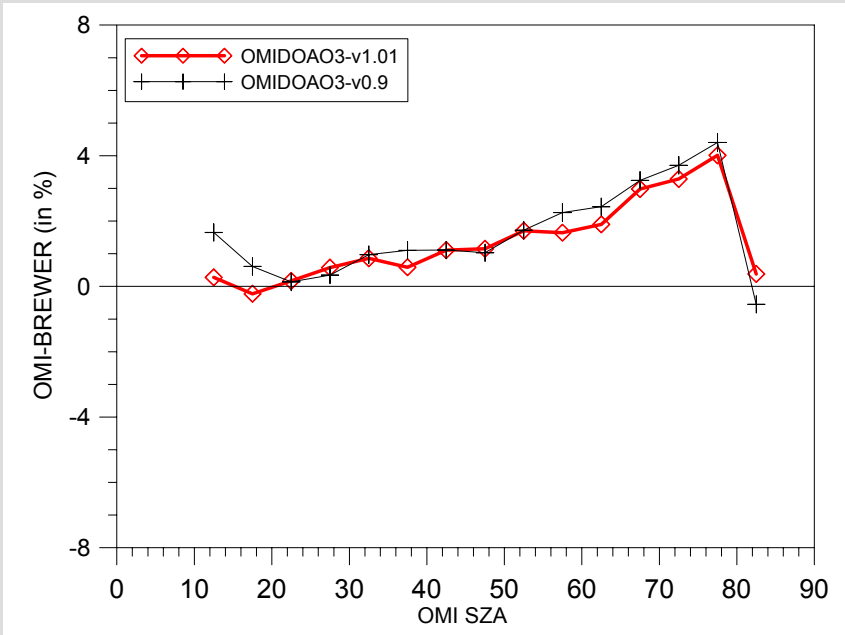


Solar Zenith Angle Dependence

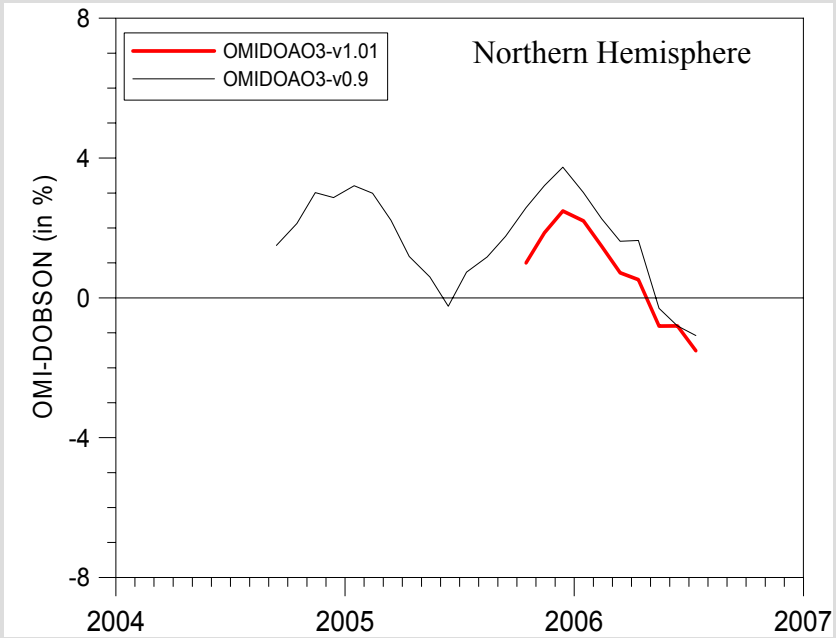


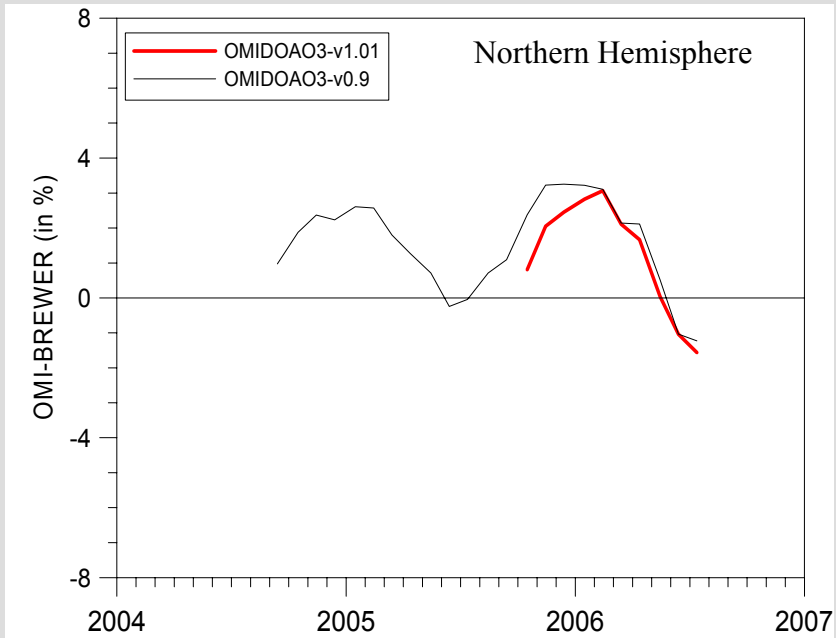


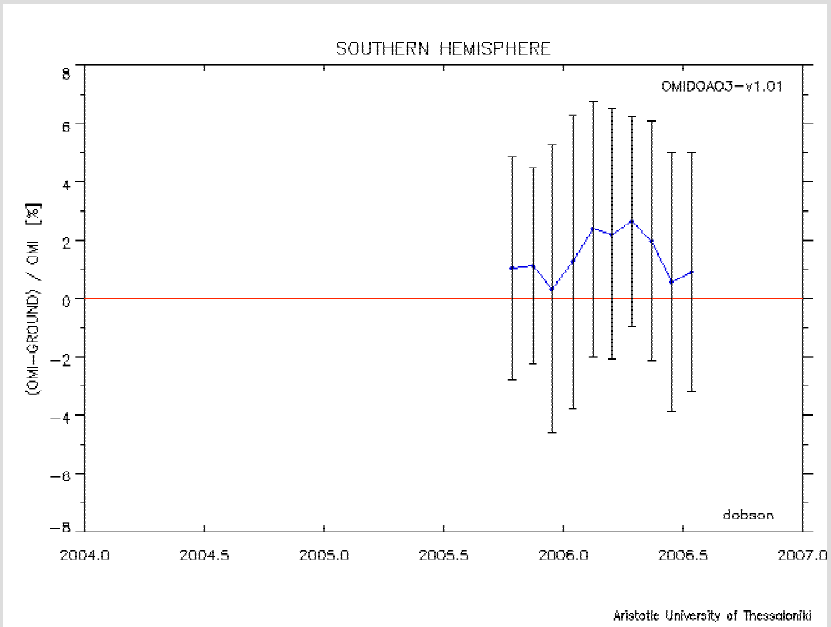


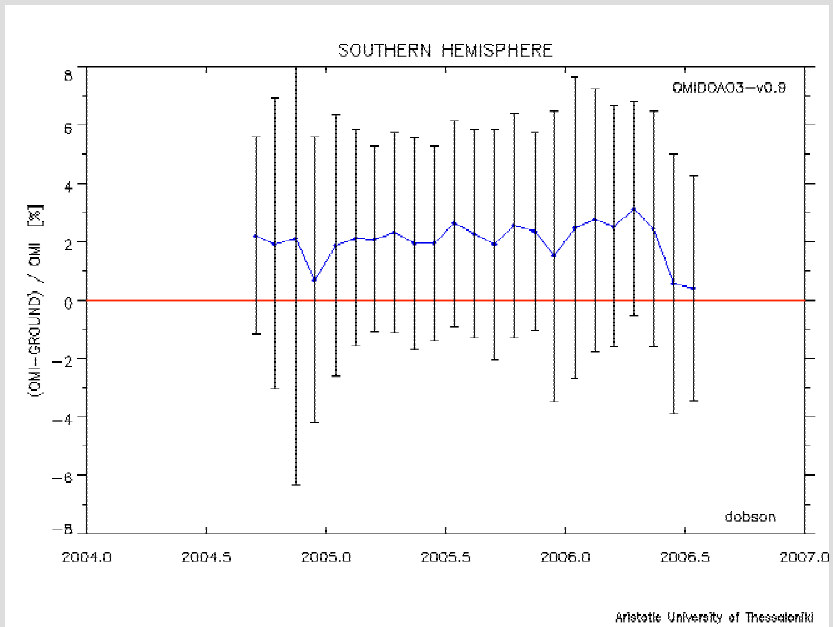


OMDOAO3 time series

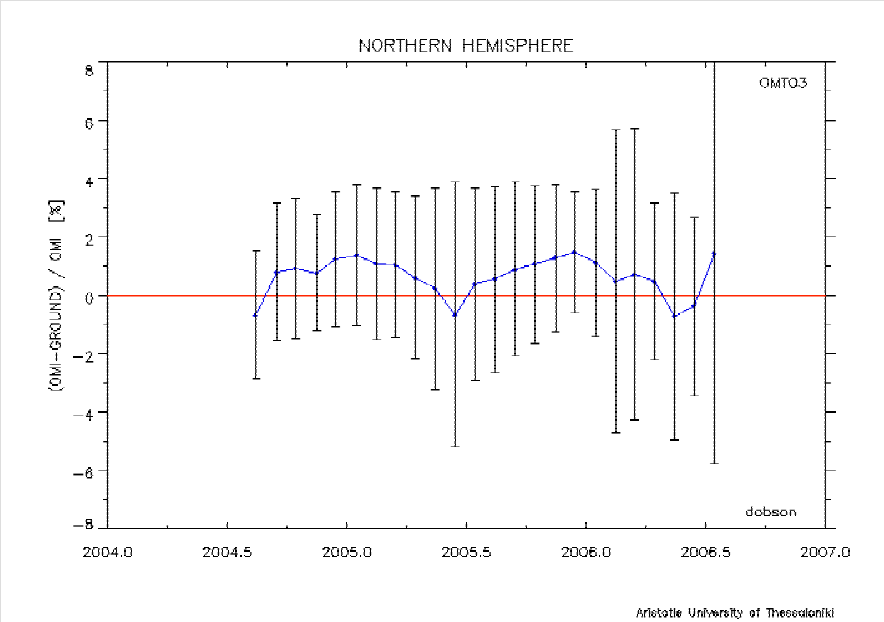


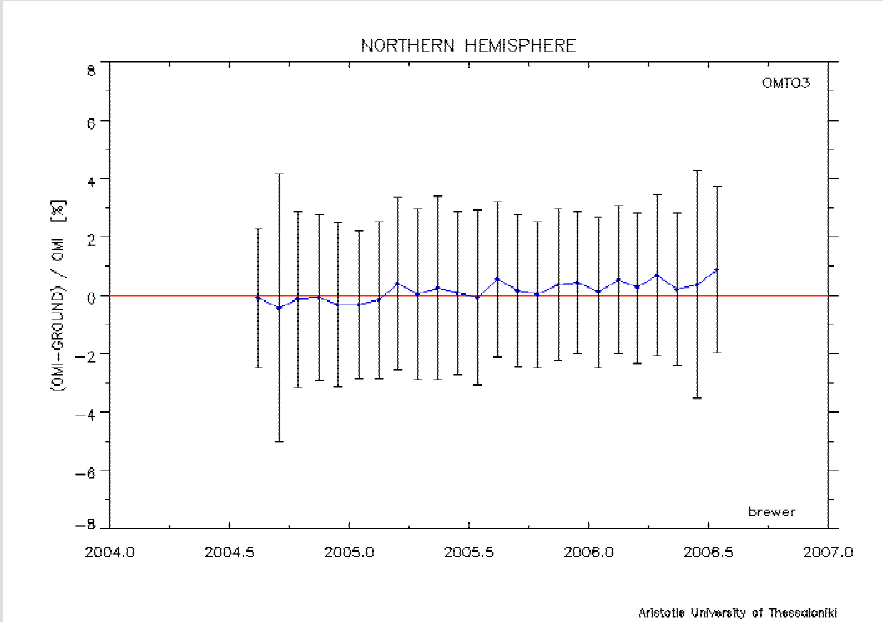


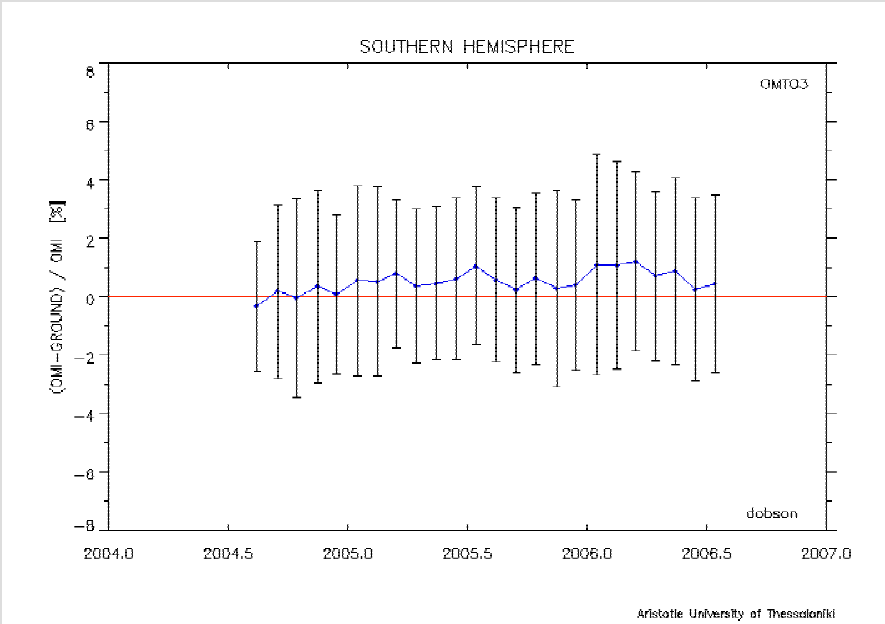




OMTO3 Time Series







Conclusions

- The average difference between OMIDOAO3-v1.01 and Brewer observations is 1.6±4.4% while the corresponding difference between OMIDOAO3-v0.9 and Brewer observations is 1.8±4.4%. The mean difference between OMTO3 and Brewer observations is 0.06±3.5% (valid mainly for 30-60^{o}N).

- The average difference between OMIDOAO3-v1.01 and Dosbon observations is 1.35±4.5% while the corresponding difference between OMIDOAO3-v0.9 and Dobson observations is 2.15±5.4%. The mean difference between OMTO3 and Dobson observations is 0.69±3.5%.

- OMI-DOAS comparisons show a seasonal dependence with an amplitude of 1.5% for the Brewer comparisons and slightly larger but in phase (2%) for the Dobson comparisons. This seasonality is similar and in phase with the one found in GDP4.0-ground comparisons. It seems that the amplitude in the OMIDOA3v1.01 comparisons has been slightly reduced (more data needed)

- OMI-TOMS-Brewer comparisons presented do not show any seasonality and are remarkably stable around 0%. OMI-TOMS-Dobson comparisons show seasonality similar to the OMI-DOAS-Dobson comparison with reduced amplitude